CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

January 24, 2002

Robert Cochran
Project Manager
Duke Energy North America
505 14th Street, Suite 940
Oakland, CA 94612

Dear Mr. Cochran:

AVENAL ENERGY CENTER PROJECT (01-AFC-20) DATA REQUESTS

Pursuant to Title 20, California Code of Regulations, section 1716, the California Energy Commission (Energy Commission) staff requests that Duke Energy North America supply the information specified in the enclosed data requests.

The subject areas addressed in the 132 attached data requests are air quality, alternatives, biological resources, cultural resources, geology and paleontology, noise, soil and water resources, traffic and transportation, transmission system engineering, visual resources, and waste management. Other data requests may be submitted at a later date. The information requested is necessary to: 1) understand the project, 2) assess whether the project will result in significant environmental effects, and 3) assess project alternatives and mitigation measures.

Written responses to the enclosed data requests are due to the Energy Commission by February 25, 2002 or at such later date as may be agreed upon by the Energy Commission staff and the applicant.

If you are unable to provide the information requested in the data requests or object to providing it, you must contact the committee assigned to the project, and the project manager, within 10 days of receiving these requests stating your reason for delay or objections.

If you have any questions regarding the enclosed data requests, please call me at (916) 654-3999.

Sincerely,

Jim McKinney
Siting Project Manager

Enclosure
cc: Proof of Service 01-AFC-20

AVENAL ENERGY PROJECT
Data Requests
(01-AFC-20)

Technical Area: Air Quality
Author: Brewster Birdsall

BACKGROUND

Fugitive Dust During Construction

Fugitive dust control efficiencies shown in Appendix 6.2-4 (pp. 6.2-4.13 and 6.2-4.16) vary between 66 percent and 88 percent depending on which component of the project is under construction. The specific control practices that are proposed to control fugitive dust are shown in Appendix 6.2-4 (p. 6.2-4.2). With this level of mitigation for dust-generating activities, staff normally expects the control factor to range up to approximately 70 percent. Staff is concerned that the anticipated control efficiency of 88 percent is unrealistically high.

DATA REQUEST

1. Please confirm that the anticipated fugitive dust control factors (i.e., 66% or 88%) are correctly identified in Appendix 6.2-4 (pp. 6.2-4.13 and 6.2-4.16).

2. Please describe the assumptions used to derive the fugitive dust emission control factors of 88% from the references cited in Appendix 6.2-4. Ideally, this discussion should explain the extent each individual control strategy (p. 6.2-4.2) contributes to achieving the overall anticipated control factor.

BACKGROUND

Fugitive Dust Control Requirements

After submittal of the AFC in October 2001, the San Joaquin Valley Air Pollution Control District (SJVAPCD) adopted rule changes that would increase the stringency of fugitive dust control requirements for the Avenal project (SJVAPCD Regulation VIII, amended November 15, 2001). Staff needs the applicant to acknowledge that compliance with recent rule changes in Regulation VIII will be required by the Staff Assessment.

DATA REQUEST

3. Please discuss the applicability of the recent modifications to the SJVAPCD rules in Regulation VIII and the conformance of the project with these rules.

BACKGROUND

Cooling Tower Emission Calculations

Staff is concerned that PM_{10} emissions for the cooling towers and chillers may be overestimated in the AFC (Appendix 6.2-1 Tables 6.2-1.3 and 6.2-1.4). The emission calculations rely on an assumed total dissolved solids (TDS) level that is as much as

ten-times higher than what has been presented to staff in other siting cases. Additional information is also necessary to confirm the emission rates of the chillers.

DATA REQUEST

4. Please confirm that both the cooling tower and the auxiliary cooling tower for the chillers will use the same cooling water and that this cooling water may be concentrated to cause total dissolved solids (TDS) levels as high as the 12,138 ppm presented in Appendix 6.2-1. Also, please explain if this anticipated TDS level accounts for pre-treatment (e.g., clarification) that would occur at the project site. The response should illustrate how the TDS level is derived from inlet water data, the number of concentration cycles, and the ability of pre-treatment to remove TDS.

5. Please describe the method of PM_{10} control for the chillers' auxiliary cooling tower that would achieve the 0.0006% drift rate represented in Appendix 6.2-1 Table 6.2-1.4 and describe whether the chillers' auxiliary cooling tower would be able to achieve a drift rate of 0.0005%, which is the drift rate for the plant cooling tower.

BACKGROUND

Startup Emission Rates

Startup emissions data from a variety of other projects (AFC Appendix 6.2 Table 6.2-1.8a) were used to characterize the emissions that could occur during startup of the equipment at Avenal. The data in Table 6.2-1.8a shows that hot start emissions of NO_x and CO commonly exceed cold start emissions. A single emission rate is assumed for all hot, warm, and cold starts at Avenal (AFC Table 6.2-20 p. 6.2-30). The assumptions and safety margins used to derive the emission rates in Table 6.2-20 are not clearly explained. Staff must be assured that the levels assumed in the AFC conservatively account for emissions that would occur during hot, warm, or cold starts of the actual equipment installed. Emissions occurring at Avenal will depend upon the site-specific climate, equipment type, and other factors. Staff assumes that vendor-specified emission rates, if available, would provide a conservative representation of expected emissions. Other applications presently before the Energy Commission (e.g., the Roseville Energy Facility, 01-AFC-14) with equipment similar to that of the Avenal AFC identify startup emissions that are 150% to 200% of those presented for Avenal in Table 6.2-20.

DATA REQUEST

6. Please discuss how the emission levels proposed in AFC Table 6.2-20 adequately characterize the actual emissions that may occur during all hot, warm, and cold start conditions. This discussion should address staff concerns that vendor-specified or site-specific factors should be considered in the

determination of startup emission rates, and it should explain why vendor-specified emission rates were not used.

7. Please discuss in more detail and provide all assumptions and calculations, including the safety margins, used to derive the emission rates in AFC Table 6.2-20 from the data in Appendix 6.2 Table 6.2-1.8a.

BACKGROUND

Modeled Impacts During Startup

The analyses of emissions and impacts during startup mode presented in AFC Table 6.2-21 and Appendix 6.2-2 (Table 6.2-2.7) indicates that only one combustion turbine would operate in startup mode at any time. The approach implies that non-simultaneous startup of the combustion turbines is not possible. Also, preliminary review of the dispersion modeling files submitted electronically (AFC CD-R file "ave9510.out") indicates that the combustion turbine/HRSG sources were the only sources modeled to determine startup impacts; this is inconsistent with AFC Table 6.2-21, which indicates the auxiliary boiler would be operating simultaneously. The hourly startup emission rate for NO_x shown in Table 6.2-20 does not match the modeled short-term emission rate (AFC Table 6.2-24 and Appendix 6.2-2 Table 6.2-2.7). Because a startup may take up to four hours (AFC Table 6.2-20), staff considers both turbines operating simultaneously in startup mode to be a reasonable scenario that could occur within the range of any single hour. Staff also needs clarification on what other sources might operate along with the combustion turbines during a startup. Without further analysis, staff may recommend a condition of certification that would prohibit simultaneous startups or simultaneous operation of other sources during a startup.

DATA REQUEST

8. Please discuss the likelihood of both combustion turbines operating simultaneously in startup mode during a worst-case condition. If technical or operational constraints preclude operating both turbines in startup mode simultaneously, please identify them. If no constraints exist and both turbines could potentially operate in startup mode simultaneously, please reevaluate the maximum hourly emissions of Tables 6.2-21 and 6.2-24 and reassess the associated ambient air quality impacts.

9. Please discuss the likelihood of the auxiliary boiler operating simultaneously with the combustion turbines in startup mode. If other sources must operate during a startup, please identify them and consider them in the dispersion modeling analysis for startup impacts.

10. Please review the short-term emission rate for NO_x during startup for discrepancies between AFC Table 6.2-20 (80 lb/hr NO_x) and AFC Table 6.2-24 (AFC p. 6.2-42 to 43) and Appendix 6.2-2 Table 6.2-2.7 (which each show 40.32

g/s or 320 lb/hr NO_x). If necessary, update the dispersion modeling analysis to include the correct hourly emission rate.

BACKGROUND

Annual Emission Rate Calculations

Maximum annual emission rates for NO_x from the combustion turbines/HRSGs shown in AFC Table 6.2-21 appear to be underestimated. Staff has questions about the annual NO_x emission rate for the combustion turbines and the NO_x and CO rates for the auxiliary boiler. According to AFC text (p. 6.2-31) and Appendix 6.2-1 (Table 6.2-1.9), each turbine would experience 400 hours of startup or shutdown annually. At an emission rate of 80 lb/hr NO_x, this results in 16 tons per year (tpy) of NO_x per turbine due to only startup/shutdown periods. When combined with the remaining 8,000 hours of anticipated annual operation for each turbine (74 tpy due to 4,000 hours at 16.45 lb/hr NO_x plus 4,000 hours at 20.30 lb/hr NO_x), the pair of turbines would annually emit close to 180 tpy NO_x. The AFC (Tables 6.2-21, 23, 35, and 36) presents roughly 150 tpy NO_x for the pair of turbines.

DATA REQUEST

11. Please confirm that the annual emission rates shown in AFC Table 6.2-21 and Appendix 6.2-1 Table 6.2-1.9 include combustion turbine startup and shutdown emissions. If revisions to these calculations would be necessary, please also update subsequent tables (e.g., Table 6.2-36) that rely on the anticipated annual emission rate.

12. Please confirm that the annual emission rates for the auxiliary boiler are consistently presented between AFC Table 6.2-21 and Appendix 6.2-1 Table 6.2-1.9.

BACKGROUND

Commissioning

Commissioning of the combustion turbines will result in emission rates above those that will occur during normal operation. The AFC does not identify each of the tasks that would be associated with plant commissioning (e.g., first fire, emissions monitor certification, performance testing, etc.). The discussion provided (AFC p. 6.2-43 to 44 and 6.2-46 to 47) does not indicate if any of the tasks would need to occur repeatedly. Additionally, the discussion and the dispersion modeling files (submitted electronically on CD-R, file “ave9511e.out”) seem to indicate that emissions from only one turbine were considered.

DATA REQUEST

13. For staff to verify that the worst-case commissioning scenarios were identified in the AFC (p. 6.2-46 to 47), please identify each of the necessary commissioning tasks, the anticipated duration of each task, the fractional load of the turbines during the task, the number of startups anticipated, and the maximum expected total duration of the commissioning period.

14. Please demonstrate why the two scenarios in the AFC would conservatively characterize commissioning conditions by summarizing the emissions and stack parameters assumed for other commissioning tasks.

15. Please discuss whether simultaneous commissioning of both combustion turbines could occur and update the impacts assessment as necessary.

BACKGROUND

Best Available Control Technology for Combustion Turbines

The AFC specifies that the proposed BACT levels from the combustion turbines will be 2.5 parts per million (ppmvd) of NO_x and 6 ppmvd of CO on a one-hour average (AFC p. 2-47). The U.S. EPA recently identified a federal Lowest Achievable Emission Rate (LAER) for this type of equipment to be 2 ppmvd for both NO_x and CO on a 1-hour average. (The U.S. EPA position was made October 25, 2001 on a proposed cogeneration facility at the Miller Brewing Company in the South Coast Air Quality Management District. The letter is filed at the Energy Commission with the November 8, 2001 SCAQMD letter to Mr. Michael Hatfield, Calpine regarding the Inland Empire Energy Center siting case. Energy Commission Docket 01-AFC-17.) Because the Avenal equipment is required to implement BACT, which would be as stringent as federal LAER (AFC p. 6.2-20), the proposed BACT levels should match the levels specified by the U.S. EPA.

DATA REQUEST

16. Please identify proposed BACT levels from the gas turbines that match the levels specified by the U.S. EPA, or provide a BACT analysis that demonstrates such limitations are not achievable. If necessary, please update the emission calculations and dispersion modeling analyses that would be affected.

BACKGROUND

Ammonia Slip Levels

The applicant proposes an ammonia slip emission limit of 10 ppm (AFC Appendix 6.2 p. 6.2-5.1). Guidance on emission levels for Power Plant Siting published by the California Air Resources Board (CARB) in 1999 calls for 5 ppm at 15% O_2. Staff agrees with the

Air Resources Board that a level of 5 ppm is achievable. Other licensing cases currently before the commission are specifying ammonia slip limits of 5 ppm. Examples of projects proposing to achieve 5 ppm are Rio Linda (01-AFC-1), Russell City (01-AFC-7), and Magnolia (01-AFC-6).

DATA REQUEST

17. Please identify why this project cannot meet an ammonia slip level of 5 ppm at 15 percent O_2. In this discussion, please identify measures, including increasing catalyst surface area that might allow the project to meet the CARB guideline level for ammonia and identify the associated costs of such measures.

BACKGROUND

Emission Offset Requirements

Additional information on the offset strategy will need to be provided to staff (to supplement AFC Appendix 6.2-6 and the confidential filing dated October 18, 2001). The total credits currently owned by Avenal, reported in AFC Table 6.2-36, fall dramatically short of those needed to offset the project. This may be especially exacerbated by the EPA sanctions that recently increased the required offset ratio to 2-to-1 (please refer to the November 10, 2001 letter from SJVAPCD to Mr. Porlier of Duke Avenal). Staff recognizes that the task of obtaining offsets is continuing and credit procurement will evolve. In the Staff Assessment, staff must identify the credits used to offset and mitigate the project. In order for staff to complete this analysis, updates to the status of the offset strategy must be filed in a timely manner.

DATA REQUEST

18. Please submit any updates of the offset strategy to staff. The details of the offset package may remain confidential, given the status of purchase and option negotiations. The offset strategy will then be summarized in the Preliminary Staff Assessment. Please continue to provide timely updates to staff through the project review period.

19. Please note that the SJVAPCD recently identified an increased offset ratio of 2-to-1 for Avenal and update AFC Table 6.2-36, as necessary, to show the current SJVAPCD offset requirements.

BACKGROUND

Mitigation with Emission Offsets

Preliminary review of the offset strategy described in AFC Appendix 6.2-6 and AFC pages 6.2-58 to 60 reveals that Avenal does not propose to offset project emissions of SO_x. Because SO_x is a PM_{10} precursor, project emissions of SO_x can contribute to ongoing regional violations of the PM_{10} ambient air quality standards, resulting in

significant project impacts. Without further analysis staff may recommend a Condition of Certification that would require project SO_x emissions to be offset.

20. Please identify the potential offset sources for project SO_x emissions. The details of the offset package may remain confidential, given the status of purchase and option negotiations.

BACKGROUND

Applications for the Determination of Compliance and Prevention of Significant Deterioration approval were submitted by the applicant to the SJVAPCD and the U.S. EPA on October 29, 2001. Staff recognizes that there may be other documents (e.g., follow-up information for responses to incomplete determinations), not provided with the AFC, which may have been prepared for the SJVAPCD or U.S. EPA that could affect staff's review of this case.

DATA REQUEST

21. Please provide staff with a copy of permitting-related submittals to or official correspondence from the SJVAPCD or U.S. EPA relating to Avenal. Also, please continue to provide to staff copies of all documents sent/received to/from the District until such time as the Commission decision for this AFC has been finalized.

Technical Area: Alternatives
Author: Susan Lee and Rebecca Morgenstern

BACKGROUND

In the AFC, the Applicant presents two sites considered as alternatives to the Avenal Energy Project (AEP). Staff requests more information on those alternative sites in order to comply with CEQA's requirement for alternatives analysis. Although the AFC provides a summary table (Table 5.1-1) of the impacts that would result from locating the AEP at the alternative site locations, additional information is needed. There is a map included in the AFC (Figure 5.3-1), but the routes for transmission line, water supply line and the natural gas pipeline for each alternative site are not identified.

DATA REQUEST

22. Please provide a detailed map on a topographic base of at least 1:24,000 scale similar to Figure 5.3-1 for the two alternative sites presented in the AFC. The map should clearly show the proposed site location and the routes for the transmission line, water supply line and the natural gas pipeline for each alternative site and for the proposed site. In addition, please include county lines, major waterways, transmission lines, railroads and major roadways. For each alternative site, state the lengths (in feet or tenths of miles) for the transmission line, water supply line and the natural gas pipeline.

23. For each alternative site, state the distance (in feet or tenths of miles) to the nearest residences or sensitive receptors (for example hospitals or schools), and the locations of those receptors.

24. For each alternative site, please provide a narrative description about the impacts for each resource described in Table 5.1-1. For example, why would Alternative Site A have a greater impact to land use than the proposed project site?

BACKGROUND

In the AFC on page 5-6, the Applicant states that Duke Avenal was unable to obtain site control for Alternative Site A.

DATA REQUEST

25. What factors resulted in Applicant's inability to obtain site control for Alternative Site A?

Technical Area: Biological Resources
Author: Rick York

BACKGROUND

The project is proposed to be located within the historic range of the San Joaquin kit fox (*Vulpes macrotis mutica*), a state listed Threatened species and a federally listed Endangered species. Duke Energy has indicated (letter from Mark Seedall to Gerardo Rio, U. S. Environmental Protection Agency (EPA), October 10, 2001) that the applicant anticipates EPA initiating consultation with the U. S. Fish and Wildlife Service. The following information is needed so staff can get a clearer understanding of the status of the federal consultation process between the U. S. Fish and Wildlife Service (USFWS) and the federal EPA regarding compliance with the federal Endangered Species Act. Duke Energy may be required to provide a Biological Assessment (BA) to EPA as part of the applicant's request to have EPA initiate consultation with the USFWS.

DATA REQUEST

26. Please describe the current status of the federal consultation process between the EPA and the USFWS for the Avenal Energy Project. Has EPA indicated a willingness to initiate consultation with the USFWS regarding the Avenal Energy Project?

27. In the October 10, 2001 letter from Mark Seedall of Duke Energy to Gerardo Rios of EPA, the following statement is included: "The USFWS has also agreed that the information from the AFC included in the enclosed consultation initiation package meets the information requirements for initiation of Section 7 consultation as set forth in 50 CFR 402.14c." What information was provided to the USFWS in the consultation initiation package? Who, at the USFWS, determined that the information met the information requirements?

28. Has the USFWS indicated whether a BA is needed for the Avenal Energy Project? Who, at the USFWS, made that determination? If the USFWS has indicated that a BA is needed but Duke Energy has not yet provided one, please explain why the BA has not been filed and when Duke Energy expects to provide a BA to EPA?

29. In the October 10, 2001 letter, the following habitat compensation ratios were identified: 1 to 1 for permanent loss of agricultural land habitat, and 0.2 to 1 (1 acre for every 5 acres) for temporary impacts associated with the use of the construction laydown areas. Were these compensation ratios suggested by the USFWS, or developed by Duke Energy? If they were suggested by the USFWS, who recommended the compensation ratios?

30. The October 10, 2001 letter also indicated that Duke Energy would provide habitat compensation funds to the Center for Natural Lands Management (CNLM) to compensate for all habitat impacts. Has Duke Energy spoken with a

representative of CNLM? If Duke Energy has spoken with a CNLM representative, please identify who Duke Energy spoke with and provide any important details of the conversation.

Technical Area: Cultural Resources
Author: Gary Reinoehl

BACKGROUND

The AFC Section 6.7 and Appendix 6.7-1 state that the project site and linears were surveyed for cultural resources except for a portion of the transmission line route.

DATA REQUEST

31. Please submit the technical reports documenting these surveys.

32. If cultural resources are present, please provide completed DPR 523 forms for the resources.

33. If resource(s) exist and it appears that the resource(s) can be avoided, please indicate the measures that will be implemented to assure that the cultural resource(s) will not be impacted.

34. If it is not possible to avoid the cultural resource(s), please provide an evaluation of the eligibility of the(se) site(s) for the California Register of Historical Resources (CEQA Section 15064.5, (a)(3)(A)-(D).

BACKGROUND

The AFC Section 6.7 and Appendix 6.7-1 state that the electrical transmission line that the project will connect with is less than 50 years of age.

DATA REQUEST

35. Please provide the construction date of the electrical transmission line and the source for the information.

36. If the electrical transmission line is more that 45 years of age, please provide an evaluation of the eligibility of the electrical transmission line for the California Register of Historical Resources (CEQA Section 15064.5, (a)(3)(A)-(D).

BACKGROUND

The AFC Section 2.3.15.5 states that the water will be provided from a turnout provided by the City of Avenal.

DATA REQUEST

37. Please indicate whether the water will be provided from an existing turnout or whether a new, larger, or improved turnout will be required in order to supply water to the project.

38. If a new, larger, or improved turnout is required, please provide an evaluation of the eligibility of San Luis Canal for the California Register of Historical Resources (CEQA Section 15064.5, (a)(3)(A)-(D).

BACKGROUND

The AFC Section 2.3.14.2 states that the gas interconnection pipeline will be buried in a trench within Avenal Cutoff Road. In Section 6.7 of the AFC and in Appendix 6.7-1, the Avenal Cutoff Road was evaluated as not meeting the requirements of the California Register of Historical Resources.

DATA REQUEST

39. Please provide a discussion of the potential to encounter remnants of the original Avenal Cutoff Road during the trenching activities.

40. Please provide mitigation measures if there is a potential to encounter remnants of the original Avenal Cutoff Road.

BACKGROUND

Section 6.7.1.5 of the AFC states that no responses have been received from Native Americans as of September 30, 2001.

DATA REQUEST

41. Please provide copies of responses from Native Americans, if any, that have been received since that date.

BACKGROUND

In some cases, local historical and archaeological societies have knowledge of cultural resources in an area of a project that may not be available through normal record sources. Staff needs the following information to complete the analysis.

DATA REQUEST

42. Please inquire with any local historical and archaeological societies that might have knowledge of historical or archaeological resources in the area of the project. Please provide copies of the inquiry letters and any responses.

43. If any such resources are identified that could be impacted by the project or could have their immediate surroundings altered (change in the integrity of the setting) by this project in such a manner that the significance of the historical resource would be materially impaired and it has not been recorded on a DPR 523 form, then please record the cultural resources on the DPR 523 form and provide a copy of the form.

44. If any of the resources could be impacted by the project or could have their immediate surroundings altered (change in the integrity of setting) by this project in such a manner that the significance of the historical resource would be materially impaired, please provide a discussion of the significance of the resources under CEQA Section 15064.5 (a)(3)(A)-(D) and provide staff with a copy of the assessment and the specialist's conclusions regarding the significance.

BACKGROUND

Cultural resources that are on lists created by local jurisdictions that could qualify as historical resources and could be impacted by the project need to be considered in the analysis. Staff needs the following information to complete the analysis.

DATA REQUEST

45. Please provide copies of local lists of important cultural or historic resources designated by a local ordinance by the city of Avenal or Kings County.

46. If any of these resources could be impacted by the project or could have their immediate surroundings altered (change in the integrity of setting) by this project in such a manner that the significance of the historical resource would be materially impaired, then please provide a copy of the requirements used by the local jurisdictions to qualify for the listing.

47. If any of the resources could be impacted by the project or could have their immediate surroundings altered (change in the integrity of setting) by this project in such a manner that the significance of the historical resource would be materially impaired and it has not been recorded on a DPR 523 form, then please record the cultural resource on the DPR 523 form and provide a copy of the form.

48. If any of the resources could be impacted by the project or could have their immediate surroundings altered (change in the integrity of setting) by this project in such a manner that the significance of the historical resource would be materially impaired, please provide a discussion of the significance of the resources under CEQA Section 15064.5, (a)(3)(A)-(D) and provide staff with a copy of the assessment and the specialist's conclusions regarding significance.

Technical Area: Geology and Paleontology
Author: Dal Hunter, Ph.D., C.E.G.

BACKGROUND

Section 6.3.1.5.6 of the AFC discusses regional subsidence due to ground water withdrawal during the 1970's and states that since that time, reduced ground water pumping has stabilized the subsidence.

DATA REQUEST

49. Please provide a brief discussion of the magnitude of historical subsidence in the area that may include the site and a discussion of documented damage to civil improvements, if any. Please cite the papers in the AFC reference section from which this information was obtained, particularly those documenting that subsidence has stabilized.

BACKGROUND

Section 6.3.1.5.7 indicates that soils in the project vicinity consist of a sandy loam and do not pose an expansive soil hazard. While sandy loam is not an engineering soils description, it does suggest that expansive soils are not present. Staff understands that expansive soils, should they be present, will be identified by the geotechnical/ engineering geological investigations to be conducted for project design. However, the origin of the soils classification presented in the AFC is not clear.

DATA REQUEST

50. Please provide a reference or discussion of how the site soil classification in the AFC was derived.

Technical Area: Noise
Author: Bill Thiessen

BACKGROUND

An estimate of power plant noise levels, during both construction and operation, is made by the applicant to determine if the project will comply with local noise ordinances and regulations, and to determine if a 5 dBA increase in background noise levels will occur due to the project. Section 6-12 of the AFC estimated construction and operational noise levels at Locations 4 and 5 which was stated in the AFC to be the residences nearest to the proposed power plant. Inspection of the project site vicinity disclosed a residence nearer to the power plant than Locations 4 and 5. The nearest residence is located approximately 2200 feet west of the northwest corner of the project site. Although no address was visible on the house, it is shown on the topographic map as a dark rectangle immediately west of the "L" in the phrase "Landing Strip." Since the nearest receptors are normally subject to worst-case noise levels, it is important to quantify noise impacts upon this receptor.

DATA REQUEST

51. Please provide an estimate of construction and operational noise levels at the residence nearest to the proposed power plant, determine compliance with local noise ordinances and regulations, and determine if ambient noise levels will be increased by 5 dBA or more.

Technical Area: Soil and Water Resources
Author: Kristine Uhlman and Lorraine White

BACKGROUND

Stormwater and Erosion Control

Construction of the Avenal Energy Project may induce water and wind erosion at the power plant site. Storm water runoff may also contribute to erosion and sedimentation as well as transport pollutants off-site. Storm water will be collected, contained and managed under the State Water Resources Control Board NPDES General Permit requirements during construction and operation. Storm Water Pollution Prevention Plans (SWPPP) will be required for both construction and operation of the facility. The AFC briefly discusses some features and best management practices (BMPs) that will be implemented for this project.

For example, the AFC states that all non-contact runoff from the site will be directed by a network of berms, drainage pipes and culverts into an unlined earthen evaporation/percolation basin located northwest of the power plant site (see Figure 2.3-9). The retention basin is to be designed for a 25-year, 24-hour storm. Contact runoff from areas inside the plant footprint will be directed to the oil/water separator if not contaminated and, if contaminated, it will be removed by truck for off-site treatment and disposal. The capacities and hydrologic/hydraulic design of this system are not described in sufficient detail to demonstrate that they will function as intended and comply with State and local requirements.

DATA REQUEST

52. Please provide a draft Erosion and Sedimentation Control Plan that identifies all specific measures that will be implemented at various locations of the project during construction and operation of the proposed Avenal Energy Project including all ancillary and linear facilities. The draft Erosion and Sedimentation Control Plan shall identify all permanent and temporary measures in written form and depicted on a construction drawing(s) of appropriate scale. The purpose of the plan is to minimize the area disturbed, to protect undisturbed and sensitive areas, to retain sediment on-site and to minimize off-site effects of stormwater runoff. This plan shall:

    a) Show existing and proposed contours at a minimal 1" = 2' interval showing existing and proposed watershed areas, peak discharge rates and volumes at key concentration points and conceptual design and capacities of the proposed conveyance system, erosion control features, and evaporation/percolation basin.

    b) If a holding tank for contaminated contact water will be used, provide information on its design and expected capacity.

c) Specify the cut and fill areas, quantities and stabilization methods.

d) Include all assumptions and calculations used to determine needed capacities and sizing of various facilities.

e) Specify all measures necessary to satisfy requirements of Nationwide Permits and/or Streambed Alteration Agreements.

f) Identify maintenance, monitoring and reporting efforts for all erosion and sedimentation control measures.

g) Discuss how the applicant will address encountering non-contaminated groundwater during excavations, as well as any contaminated soil or groundwater that may be excavated or encountered during construction. Specifically, it should address how stormwater coming into contact with any contaminated materials will be collected, treated, and discharged.

h) Address the potential increase in flows from the site improvements and the impact to offsite properties. Include in this discussion, a depiction of all BMPs that will be implemented to divert or convey off-site drainage.

53. Please provide a draft Storm Water Pollution Prevention Plan (SWPPP) consistent with the requirements for a NPDES General Permit (for information on these requirements, please refer to the exhibits provided in the Applicant's Data Adequacy responses, December 2001) for the site and associated linear facilities.

a) The plan shall describe all temporary and permanent construction and operational BMPs, calculations and assumptions used in determining drainage or containment structure sizes, capacity and appropriate BMPs, and show conceptual design and locations proposed for these BMPs. Also, include in the draft plans a proposed contaminate spills prevention and countermeasure plan.

b) The contact and non-contact drainage systems and design should be clearly differentiated in terms of location, watershed area, drainage conveyance design, storage system design, peak flow rates and runoff volumes. The plan should include:

i) pre-development and post-development storm water discharge rates and volumes for contact and non-contact areas for the 5, 10, 25- and 100-year recurrence intervals,

ii) a description of how frequently runoff volumes are expected to exceed the capacity of the evaporation/ percolation pond,

iii) if proposed, the capacity and design of the contact, contaminated stormwater holding tank, and

iv) a discussion of how excess runoff will be accommodated and prevented from carrying contaminants offsite in the event of back-to-back storms or storms in excess of the storage capacity.

c) Please provide a narrative description as well as conceptual plans and design details with all back-up hydrologic and hydraulic calculations used in developing the drainage concept design.

d) Please specify all proposed monitoring and reporting consistent with the recent amendments (2001-046) to the NPDES General Construction Activity Permit regarding sampling of pollutants.

e) Describe all revegetation efforts that will be used to address erosion, stormwater management and sedimentation control.

f) Please provide written evidence of consultation regarding conformance of the proposed grading plan and storm water facilities with Kings County and or City of Avenal regulations and policies.

g) Please provide written evidence of consultation with the Regional Water Quality Control Board confirming expected compliance or exemption of the Avenal Energy Project under the General Permit for Discharge of Stormwater Associated with Industrial Activity.

BACKGROUND

Sanitary Wastewater

As proposed, sanitary wastewater will be disposed of in a septic tank and leach field system. However, no specific information on the design or capacity is provided to verify that the construction and operation of the system will conform to local requirements.

DATA REQUEST

54. Please provide a preliminary design for the sanitary septic system including all features, capacity as well as calculations, consistent with the City of Avenal and or Kings County requirements. Please provide a discussion of the conformance of the design with specific local requirements.

55. Please locate on an appropriate Site map the proposed location of the septic leach field.

BACKGROUND

Cooling Water

Operation of the Avenal Energy Project (Avenal) will require an average of 2,250 acre feet per year of water. Average daily use is stated to vary between 1,328 to 3,146 gallons per minute (gpm), depending on Plant operations and cooling efficiencies. According to the AFC, Duke has secured 2,250 acre-feet per year of guaranteed water supply from the Nickel Family, LLC from their 10,000 acre-feet per year of Banked Lower Kern River Water. This water will be supplied by the Kern County Water Agency (KCWA) via a turnout on the San Luis Canal currently operated by the City of Avenal

and through an exchange of local water to its member units for State Water Project (SWP) supplies. The City of Avenal will provide access to the San Luis Canal turnout for interconnection with the surface water source.

As explained in the AFC, this water was made available as a result of three specific actions: 1) acquisition, as part of the Kern River Restoration Project, of high flows of the Lower Kern River water right for increased river flows during the driest months, as well as urban and agricultural purposes (see p. 3 KCWA Initial Study, July 27, 2000) to benefit the metropolitan Bakersfield area and other Kern County users; 2) a water purchase agreement between KCWA and DWR for banked SWP and Lower Kern River water in the Kern Water Bank and the Pioneer Groundwater Recharge and Recovery Project (see Initial Study/Negative Declaration (IS/ND), February 8, 2001) to be used for "flexible water project management; and 3) Transfer of 10,000 acre-feet of banked Lower Kern River Water (see the IS/ND, September 27, 2001). According to the AFC (p. 6.5-1), "the project will bring a new supply of municipal and industrial water to King's County, for its operation….."

Potable water will be provided from the adjacent City of Avenal water treatment facility and bottled water will be provided for drinking water. Water storage for both fire and plant operation will be contained within one 2 million gallon (MG) capacity tank, with 1.7 MG reserved for plant operation (sufficient to respond to a 9-hour interruption of water supply) and the remainder held for fire response.

"The movement of surface water into the Kings County provides a net benefit to the local area and enables the Project to rely on ground water only as a backup supply that is offset by conservation measures (AFC Section 1.9, page 1-27)." The AFC also states that "(s)ince the Project has acquired municipal and industrial water, there are no benefits from alternative cooling systems (AFC Sec. 1.7, page 1-16). " Also reductions in water requirements are achieved by the implementation of 12 to 16 cycles of cooling water re-circulation (AFC Sec. 2.3.7.5) and recycling of waters from the zero liquid discharge facilities (ZLDF) that will process all cooling and process water. It is stated in the AFC that a 10 percent reduction in water use is achieved with this re-circulation and recycling.

DATA REQUESTS

56. AFC Water Balances, found on Table 2-8-1 in Appendix 2.8 of the AFC, does not identify the volume of flow to the closed-loop cooling water. The Conceptual Water Balance Diagram, found in Appendix 2.8 of the AFC, suggests potable water is cycled through to the plant cooling tower via the plant safety showers and eyewash stations and the clear water sump. Please clarify/correct the Diagram and identify the source of water for the closed-loop cooling system. Table 2-8-1 suggests there is no water circulating within the closed-loop cycle, and it is possible there are several other errors within the Table.

57. AFC Water Balances, Table 2-8-1, appears to assume that the entire volume of potable water obtained from the City of Avenal Water Treatment Plant will be ultimately discharged to the sanitary wastewater leach field. Recalculation of anticipated sanitary wastewater volume expected to be generated with 30 employee/units per day results in a total flow of 0.30 gpm. Please explain the need for more than eight times the volume of water to support the Plant's potable water needs.

58. What will be the source of landscaping water for the Project?

59. Please clarify what is meant by the statement that the project will bring a new supply of municipal water to King's County.

60. Please clarify what "local" water KCWA will use in the exchange if not the banked Lower Kern River Water.

61. Please clarify and explain the relationship between each of the projects reviewed under the specified environmental documentation. In particular, please explain how acquisition of the high flow Lower Kern River water right by KCWA for river restoration, or Kern County urban and agricultural use resulted in the Nickels Family, LLC having 10,000 acre-feet per year of banked Lower Kern River Water available for sale or transfer outside of Kern County.

62. Please clarify if the acquired 40,000 acre-feet a year of high flow Lower Kern River water right by KCWA is the amount used to calculate the Nickels 10,000 acre-feet and KCWA's 30,000 acre-feet (see DA response p. 29).

63. In addition to the text provided in the December 7, 2001 Responses to Data Adequacy Comments (Data Adequacy Response, Appendix B, (g) (14) (C) (iv)), please provide a design schematic and flow chart to support the Data Adequacy response text (Page 21).

64. Please provide documentation from KCWA that defines if they retain, on behalf of their member agencies, rights for sale of the proposed water supply outside of their service area.

65. Please identify the water supply and/or irrigation turnout connections to the San Luis Canal immediately upstream and downstream from the City of Avenal connection. Please provide historic daily (or monthly, if daily is not available) flow data (hydrograph) on the volume of water flow measured in the Canal at a location nearest to the Project Site.

66. Please provide information on the expected water delivery schedule that the applicant expects to submit to KCWA for SWP deliveries.

67. Please revise the water balance diagram and table (see Appendix 2-8) to clearly represent when groundwater will be used and in what quantities. Please provide information on the expected annual maximum water demand.

68. Please show the calculations used to derive the total water usage rates shown in Table 2.3-1 and 2-8-1 (Water Balance). Include in the total water usage rates the estimate for maximum annual, not just average annual rates. Identify the likely number of days that the project is expected to operate under peak summer conditions (assumed to be case 1 in Table 2-8-1).

BACKGROUND

Groundwater Use

Groundwater will be used for construction water needs (including pipeline testing) and for back up water supplied by nearby existing ground water wells (18-1, 18-4 and 24-5). Two new pipelines are required to convey this groundwater to the project. Water needed during construction will be from well 18-4, which is reported to yield 2,320 gpm. Back-up water, supplied by all three existing wells, will be required at "times of an annual increase in power demand, interrupted canal flow or events of elevated canal turbidity" (see Section 2.3.7.1). Section 1.8.3 of the AFC states that "Water conservation measures will be implemented by the owner/operator of the surrounding lands (Kochergen Farms) to offset ground water that will be pumped from wells for the Project backup water supply."

The farmer/landowner supplying the backup ground water owns over 2,000 acres of active orchard and row crop agricultural land and (presumably) several irrigation wells. Less than half of the Kochergen Farms is in crop rotation and the information reported within the AFC suggests that they are already using mechanized irrigation and water conservation methods across the Farm. Approximately 400 acres are currently irrigated with microsprinklers. If the remaining 1,600 acres were irrigated with microsprinklers, only approximately 800 AFY of water would be conserved. The 148 acre site, located within the City of Avenal, Kings County, will remove approximately 50 acres (25 acres for the permanent facility) from Kochergen Farms agricultural production to build the 600 megawatt combined cycle generating plant and ancillary facilities. The remaining acreage will remain in agricultural development.

Historic ground water development in the San Joaquin Valley has been responsible for overdraft of the aquifer, with ground water elevations reported to have dropped by as much as 400 feet. Land subsidence has been reported throughout the valley due to this overdraft. Ground water elevation recovery has been reported to have been achieved by off-setting ground water production with the importation of fresh surface water for irrigation (AFC Appendix 6.5-2). Leaching of soils and agricultural practices have contributed to the Valley-wide presence of brackish irrigation tail water perched on the Corcoran clay, with depth to shallow brackish ground water reported to be as shallow as 5 feet below land surface (AFC Appendix 6.5-2, Figure 3). To evaluate the potential

impacts of project groundwater consumption, including drawdown of nearby wells, additional information is needed.

DATA REQUESTS

69. Please provide historic information as to the past occurrence of interrupted canal flows, including data on the season, duration, precipitating conditions and frequency of occurrence. Provide an estimate of the groundwater demand that will be due to this condition.

70. Please explain what is meant by "an annual increase in power demand." How often and during what season are these conditions expected to occur? What portion of plant demand will come from groundwater water during these events?

71. At what level of turbidity will canal water be unacceptable for use by the project? Please provide, based on historical water quality data for the canal, information on how often the canal water will likely exceed this level. Please discuss the level of treatment that would be required during these elevated turbidity events to make the canal water acceptable for use by the plant and the associated infrastructure required as well as the costs. How often does the applicant expect the water quality of the canal water to be unacceptable? During what months and seasons, and with what frequency, is this condition likely to occur?

72. Please provide historical data on pumping for the wells that the applicant proposes to serve the project. Please provide information on the last five years worth of pumping data, including flow volumes, well capacity, operational profiles and time of use.

73. What is the maximum daily, monthly and annual groundwater use at the Kochergen Farms? What amount of land will be dedicated to the conservation program?

74. Using ground water well historic pumping records and other agricultural data from past practices within the Kochergen Farms acreage, please identify the length of the irrigation season and calculate the volume of water that will be eliminated from use due to the removal of 50 acres from agriculture. Differentiate the data specific to the acreage proposed to be used for the Avenal Energy Project site, if possible. If site-specific data are not available, please use literature values for irrigation application rates for the crops known to have been in production in the past within the Project site area.

75. Please provide information on all sources of water that the farmer/landowner uses to irrigate their property (surface and groundwater) and the volumes for each required to supply current irrigation demand. Include in this information any rights the landowner may have to SWP water that is served from the San Luis Canal or nearby facilities.

76. Table 6.5-5 offers subirrigation as a water-conservation irrigation approach.. Subirrigation consists of controlling the water table elevation so as to irrigate crops from the root zone, and requires an elevated (shallow) water table. What is the depth to ground water in the area of the Kochergen Farms that may be a candidate for subirrigation? What fields within Kochergen Farms (Figure 6.4-3) have the physical characteristics suitable for subirrigation (shallow water table)?

77. Please provide a draft water conservation plan (see DA Response #1, pg. 16) that shows and discusses:

    a) Identification of irrigation water conservation measures proposed to be implemented to off-set ground water pumping. Specify if these measures will be implemented in anticipation of Project Site pumping or in response to the need for pumping. If implementation is in response to pumping, what will be the time delay between Project site ground water pumping/use and reduction in ground water pumping/use for irrigation? For example, crop rotation would be expected to require seasonal implementation and could occur several months after ground water backup water had been extracted.

    b) The amount of farmland needed to provide adequate conservation for various conservation methods and or changes in agricultural practice.

    c) The amount of farmland dedicated at any time to the program/plan. Include in this information area currently dedicated to various crops and how these crops will be converted and under what schedule. If irrigation practices will be employed, specify all measures, their location and discuss the changes in operation.

    d) Information on the responsible parties and or agreements that will be enforced to ensure that the conservation methods are implemented.

    e) Information on past pumping practices that will be used to evaluate success of conservation efforts. Include in this information what wells would be involved in the monitoring program to measure conservation.

    f) Explain anticipated changes in the time and season of use for various methods from current practice. Based on information provided regarding when back-up supplies would be required, please explain how conservation measures will ensure no increase in groundwater pumping for maximum daily, maximum monthly and maximum annual pumping.

    g) Identification of the methodology proposed for monitoring and reporting of the no-net ground water pumping program. Please quantify the volume of groundwater that may be pumped during the non-irrigation season, when irrigation water conservation measures may not be applicable. Discuss proposed accounting methods that will be used to measure level of conservation.

    h) Provide all calculations, assumptions and formulas used in the development of the plan.

78. Please provide the maximum pumping capacity anticipated for each project well.

BACKGROUND

Chromium Groundwater Contamination

Ground water serving the Kettleman Hills compressor station 7,000 feet from the Project Site has been identified as contaminated with chromium-6. Review of AFC Tables 6.5-2 and 6.5-3 identifies Site well 18-1 as the shallowest of the three existing Project site wells (based on pump setting), and the only well with detectable chromium in ground water samples (collected in April of 2001 by the Applicant). AFC Figure 1.5-3 identifies at least nine other wells in the area of the Project that are likely high capacity irrigation supply wells within the same aquifer serving the proposed backup wells.

DATA REQUESTS

79. Please provide the as-built well construction diagrams for Kochergen Farms wells 18-1, 18-4, and 24-5. Please provide pumping records for these wells, calculated aquifer characteristics, geologic log (if available) and period and history of use. Using well test information that should already be available, please calculate the area of influence and capture of each of the three wells. If well specific data is not sufficient to calculate well-specific transmissivity (or hydraulic conductivity) please use values reported in the literature to be typical for the aquifer area.

80. Please map operating wells within 7,000 feet of the Project site and identify the portion of the aquifer (depth) from which water is extracted if that information is available.

81. Please discuss the likelihood of exacerbating contaminant transport of chromium due to the pumping of the Project Site backup wells. For example, if fresh surface water supply were interrupted during the non-irrigation season, what is the likelihood that pumping from 18-1, 18-4, and/or 24-5 will transport Kettleman Hills chromium contaminants into Project wells or neighboring wells?

82. AFC Appendix 6.5-2, Section 2.2 states that shallow perched water is not present beneath the site. The text and numerous figures also suggest that the Corcoran Clay Member is not present beneath the site. Please document the source of this assumption. If shallow perched brackish groundwater is encountered during construction, what protocols are proposed to dewater, collect and properly dispose of this water?

BACKGROUND

Use of Inland Surface Water for Cooling

The AFC (AFC Supplement Section 6.5.1.4.2, Page 6.5-20) includes a discussion of the conformity of the project with State Water Resources Control Board's policy 75-58 (SWRCB, 1976) regarding power plant cooling and alternatives. All alternatives to the use of fresh inland surface and or groundwater were found to be either environmentally undesirable or economically unsound (see section 5.4 also). However, insufficient information was provided to substantiate this determination.

DATA REQUEST

83. Please provide details on the feasibility and environmental impact analysis conducted by the applicant regarding alternative water supplies and cooling methods in comparison to the proposed use of State Water Project water diverted at the San Luis Canal. The analysis should include, at a minimum:

    a) impacts on water use, other users and waste discharge from each alternative in comparison to those currently proposed for the project;

    b) all economic factors considered (such as capital and operating costs including water purchase and infrastructure price; efficiency losses and economic impacts; etc.) and all assumptions and or vendor data to support these estimates;

    c) changes in plant and linear facility infrastructure required to support each technology;

    d) plant efficiency and output calculations and assumptions for each alternative considered; and

    e) analysis to support determinations on environmental impacts (particularly land use, biological and cultural resources, agriculture and soils, geologic hazards, traffic & transportation and water resources).

    f) all information sources and appropriate references.

BACKGROUND

Water Transfer Infrastructure

Avenal will obtain needed water supplies from the City of Avenal turnout in San Luis Canal Pool 20. According to the AFC and its Supplement, the City is relocating this turnout to a location along the Canal that is less turbid. The Applicant proposes to build a water supply pipeline from the new turnout to the project site. Insufficient information is contained in the Application to evaluate potential impacts on local infrastructure resulting from the project.

DATA REQUESTS

84. What is the current average and maximum daily operation of the existing turnout for the City of Avenal in the Canal? Please specify what the current annual design volume of the City's turnout is. Please discuss all current users served by the City of Avenal from these facilities.

85. What is the design average and maximum daily operation volumes of the new City of Avenal turnout? Please provide staff with all appropriate environmental documentation associated with the relocation and/or modification of the City of Avenal's turnout to be used by Duke.

86. Please provide verification from the City of Avenal that no new facilities other than those discussed in Data Adequacy Response Appendix B (g)(14)(C)(iv), p. 24 will be required to serve the project. Please provide confirmation from the City of Avenal as to the expected completion date for the relocation of the turnout.

Technical Area: Traffic and Transportation
Author: David Young

BACKGROUND

The AFC states that the majority of the truck deliveries would arrive primarily along the following routes: via Interstate 5, exiting on the Avenal Cutoff Road, and then to the site; or along SR-198, onto Avenal Cutoff Road, and then to the site. However, on page 6.11-9, section 6.11.1.2, the AFC states that there are two road segments with geometric constraints (eastbound on Jayne, southwest on Avenal Cutoff Road and westbound on Jayne, south on Avenal Cutoff Road) that could delay traffic. These constraint locations were not included in the proposed truck routes.

DATA REQUEST

87. Please discuss the number and frequency of truck deliveries associated with the route described in Section 6.11.1.2.

88. Describe the measures that will be taken to eliminate or lessen the potential traffic impact associated with the constraint areas.

BACKGROUND

The gas pipeline and other linear construction activities may affect local traffic flow during construction. The AFC, **BIOLOGICAL RESOURCES** page 6.6-17, section 6.6.1.4.2**,** states that the construction of the gas pipeline follows Avenal Cutoff Road and Plymouth Avenue to the Kettleman compressor station. Table 6.11-1 includes characteristics for roads and highways in the vicinity of the project but does not include any data for Plymouth Avenue.

In addition, section 6.11.1.1.4 states that Kings Area Rapid Transit (KART) runs along Plymouth Avenue and SR 269/Skyline Boulevard but does not discuss the effects the construction of the gas pipeline would have on this transit route.

DATA REQUEST

89. Please provide roadway characteristics (including Levels of Service (LOS) and average daily traffic (ADT)) for the segments of Plymouth Avenue that would be affected by the construction of the gas pipeline.

90. Discuss the mitigation measures that will be taken to lessen any impacts.

91. Discuss transportation, travel routes and parking arrangements for the gas pipeline construction workforce.

92. Please identify any potential effects the construction of the gas pipeline may have on local businesses, schools, residences, and on-street parking.

93. Describe the potential effects of the gas pipeline construction on the KART transit route.

94. Discuss the measures that would be employed to ensure minimal impacts.

BACKGROUND

The AFC states that bicycle routes are planned along Avenal Cutoff Road, SR-269 and Jayne Avenue.

DATA REQUEST

95. Please discuss the construction schedule of the proposed bicycle facilities.

96. Identify any impacts the AEP project will have on the bicycle routes and what measures will be taken to minimize the effects.

BACKGROUND

The AFC proposes routes for transporting hazardous materials during the construction and operational phases of the project, but does not indicate roadway conditions or if there are any potential sensitive receptors along these routes.

DATA REQUEST

97. Please identify any roadway features or traffic safety danger points such as sharp curves, railroad crossings and any sensitive receptors such as schools, residential areas or hospitals along the hazardous material delivery and disposal routes.

BACKGROUND

The AFC discusses airports located in the vicinity of the AEP but does not include public or private airstrips in its discussion.

DATA REQUEST

98. Please supply the location (i.e., addresses, or location near mapped roads) for any air related facilities or landing strips – including crop dusting related facilities - in the area that could potentially be affected by the AEP.

99. Please describe the steps the applicant will take to ensure that the power plant's stacks do not pose a traffic hazard. This includes effects on small aircraft using local air facilities.

BACKGROUND

The AFC discusses hazardous material deliveries during the construction and operational phases of the project but does not include any discussion on hazardous waste disposal.

DATA REQUEST

100. Please discuss the following items related to hazardous material disposal during the operational phase of the project:
    a. Location of disposal facilities
    b. Proposed truck routes

BACKGROUND

The AFC indicates that two railroads could potentially be used to transport some of the heavier equipment to the project site.

DATA REQUEST

101. Please discuss the adequacy of truck access to the relevant railroad stations.

102. Discuss the availability of active crossing gates at critical railroad crossing locations for public safety purposes.

BACKGROUND

The AFC includes characteristics for some of the roadways affected by the AEP. However, it does not provide any Accident History Data (AHD) for the listed roadways.

DATA REQUEST

103. Please include AHD for all roadways potentially affected by the AEP.

TECHNICAL AREA: Transmission System Engineering
Authors: Ajoy Guha, P. E. and Sudath Arachchige
Technical Senior: Al McCuen

BACKGROUND

Staff needs a complete interconnection study to analyze the reliability impacts and to be confident of identifying the interconnection facilities and any new and/or modified downstream facilities necessary to support interconnection of the Avenal Energy Project to the Pacific Gas and Electric (PG&E) system. Such interconnection should comply with Utility Reliability and Planning Criteria, North American Electric Reliability Council (NERC) Planning Standards, Western Systems Coordinating Council (WSCC) Reliability Criteria, and California Independent System Operator (CAISO) Reliability Criteria.

The preliminary System Impact Study Report filed with the Application for Certification (AFC) was for interconnection of 600 MW generation with 2004 summer peak and heavy spring base cases. The study included a limited Load Flow analysis without resolving all overload criteria violations and did not include analyses for Transient Stability, Post-transient Voltage and Short Circuit. Staff also notes from the study report and the November 26, 2001 filing that a comprehensive System Impact Study performed by PG&E will be published shortly. Staff, therefore, needs a study with complete analysis and information in order to assess downstream transmission system impacts in 2004 summer peak and spring (off-peak) system conditions. This study and its impacts should be coordinated with PG&E, CAISO and any adjacent Transmission Owner systems.

DATA REQUESTS

104. Please provide a new System Impact Study prepared by PG&E, the Transmission Owner (TO). Analyze the system with and without the proposed plant of 600 MW nominal output, and include all system impacts and mitigation alternatives considered and then selected for 2004 summer peak and spring (off-peak) system conditions.

105. Identify the major study assumptions in the base cases such as imports, exports, major line flows, major generations including hydro, load changes in the system and all the proposed queue generation operational in the study area before the Avenal Energy project. Please identify the reliability and planning criteria utilized to determine criteria violations.

106. Analyze system for Load Flow for N-0 (normal condition), important N-1[1] (single contingencies & CAISO Category B contingencies) and critical N-2 (double

[1] For a limited scope study, in discovery staff and /or CAISO may conclude that additional N-1 & N-2 outages may be necessary to determine conformance with the WSCC, NERC and CAISO reliability criteria.

contingencies & CAISO Category C contingencies) system conditions. Provide a list of overload criteria violations in one table showing the loadings before and after the new generation and their differences side by side.

107. Provide power flow diagrams (MVA, percent loading & P. U. voltage) for base cases with and without the project. Power flow diagrams must also be provided for all N-0, N-1 and N-2 studies where overload or voltage criteria violations appear.

108. Analyze system for Transient Stability and Post-transient Voltage conditions under critical N-1 and N-2 contingencies. Provide related plots, switching data and a list of voltage criteria violations if any for adding the new generation.

109. Provide a list of all contingencies evaluated for each study.

110. Provide a Short Circuit Study report in one table showing fault currents at important buses with and without the new generation, and respective breaker interrupting ratings side by side

111. List mitigation measures considered and those selected for all criteria violations.

112. Please provide electronic copies of the PSLF *.sav & *.drw files of the base cases, and EPCL and/or AUTOCON contingency files.

113. provide a full description of any new interconnection facilities and downstream facilities, and the downstream facilities requiring modifications, reconductoring or any other change. For their environmental settings and impacts, provide routes and detailed environmental analyses (including other technical areas related to transmission) and any recommended mitigation measures.

Technical Area: Visual Resources
Author: Christa Fay and Brewster Birdsall

BACKGROUND

Staff will need to make use of the Applicant's figures presented in Section 6.13 Visual Resources and supplemental filings.

DATA REQUEST

114. Please provide a CD containing electronic versions of the following Section 6.13 Visual Resources figures: 6.13-15 (Elevation Views), 6.13-16 (Isometric View), 6.13-18 (Conceptual Landscape Plan), 6.13-20 (Project Visibility), 6.13-22 (KOP Locations in Context), and 6.13-23 (KOP Locations on Air Photo).

115. Please provide a CD containing electronic versions of the revisions to existing figures and new figures as requested in the following Data Requests.

BACKGROUND

Photographs were obtained at each Key Observation Point (KOP) and presented along with visual simulations of the proposed project. In order to accurately represent the views that would be experienced at each KOP, staff considers 18 inches to be an appropriate reading/viewing distance for all KOP images. However, the images presented (setting photographs as well as simulations) are presented at a less than life-size scale when viewed at the 18-inch reading/viewing distance. Although the reading/viewing distance of 8 inches is specified for the images presented in the AFC, the images are still undersized based on field verification. The presentation of images at a reduced scale understates the prominence of visible landscape features as well as potential visual impacts.

Also, as discussed in the section 6.13.3.7, "Transmission Line Route," approximately 7,000 linear feet of transmission lines supported on seven 120-foot tall towers would be installed between the project site and the existing transmission lines. The KOP image simulations depict the proposed plant; however, they do not show the proposed transmission lines and towers.

DATA REQUEST

116. Please re-scale the setting and simulation images for KOPs 1 through 5 to achieve life-size scale when viewed at a standard reading/viewing distance of 18 inches. If re-scaling results in substantial degradation of the image, please provide new high resolution setting and simulation images at life-size scale. After obtaining appropriately scaled images, please provide four photocopies of high quality 11"x17" color images of the existing views and simulations.

117. For KOPs 1 through 5, please revise the simulations to include the transmission lines and towers to the extent they would be visible from each KOP.

BACKGROUND

Section 6.13.6, "Key Observation Points and Project Modifications," identifies the establishment of five KOPs – on Avenal Cutoff Road at Interstate 5, three at various distance from the site on Avenal Cutoff Road, and one from a cluster of residential units north of the project site. Staff believes that KOP 1 represents Avenal Cutoff Road travelers to a greater degree than the Interstate 5 travelers. It is important to carefully evaluate the project's effect on all major viewing groups, whether the visual impact is significant or less than significant. Viewers from Interstate 5 do not appear to be represented to the fullest extent possible.

DATA REQUEST

118. Please establish a new KOP 6 along northbound Interstate 5, south of the Avenal Cutoff Road overcrossing. The new KOP should be sited to provide an unobstructed line of sight to the proposed project site that is representative of the traveling views of the project site from Interstate 5.

119. Please provide an evaluation of the potential visual impacts that would be experienced from this KOP. The discussion should be equivalent in detail to that provided for KOPs 1 through 5. As part of this evaluation, please provide an existing view photograph and visual simulation from the new KOP. The new images must be at life-size scale. Please provide four photocopies of high quality 11"x17" color images for the existing view and simulation.

BACKGROUND

Section 6.13.3.4 "Conceptual Landscape Plan" addresses the project landscaping that is to be installed in the areas surrounding the plant site. The images depicting the landscaping (KOPs 3 and 4) do not appear to match the proposed landscape plan depicted in Figure 6.13-18. For example, the rows of tall, dense evergreen species that are proposed in front of the HRSG units and parking area are not shown in the simulations from KOPs 3 and 4.

It should be noted that staff considers any project-induced visual impact extending beyond five years after completion of project construction to be a long-term visual impact. No information has been provided about the age of the landscaping in the simulations provided for KOP 3 and 4.

DATA REQUEST

120. For KOPs 3 and 4, please provide four revised photocopies of high-resolution 11”x17” color images of life-size scale simulations of the project with landscaping as depicted on Figure 6.13-18, showing the tall dense evergreen screens.

121. Please provide detail about the age of the landscaping depicted on the revised simulations for KOPs 3 and 4, the rate of growth of the proposed plant species, and timeframe to landscaping maturity.

BACKGROUND

Project night lighting is discussed in sections 6.13.3.5, “Night Lighting,” and 6.13.9.4, “Project Creation of Light and Glare”. The discussions of lighting describe the controls that would be utilized to minimize the visibility of night lighting. However, the discussions do not describe the extent to which existing night lighting is visible from each KOP and Interstate 5, or the extent to which proposed project lighting would be visible to those same locations, nor is lighting during project construction discussed.

DATA REQUEST

122. Please describe existing night lighting in the immediate project vicinity and the extent to which night lighting is visible from each KOP and Interstate 5.

123. Please describe the extent to which night lighting during project operation would be visible from each KOP and Interstate 5. Also, please describe the visibility of project components (including exhaust stacks) due to illumination from the proposed project lighting.

124. Please describe night lighting to be used during project construction and how construction lighting would be limited to the immediate area where construction activities would occur.

125. Please identify whether or not facility stack lighting would be required and if so, by which agency or requirement, and in what manner.

BACKGROUND

The AFC does not include any discussion of potential visible water vapor plumes from the plant cooling tower or auxiliary cooling towers for the chillers. Staff will conduct an independent visible plume modeling analysis to determine the frequency and size of water vapor plumes that could occur from this equipment. The Staff Assessment will determine whether potential visual impacts from cooling tower plumes would exist. Staff requires additional project data to complete this analysis. Please note that staff intends to model the cooling towers using hourly estimated exhaust conditions that depend on

the hourly ambient weather conditions. The exhaust conditions will be interpolated by staff based on the exhaust values given in the response. The applicant may provide exhaust conditions for any range of ambient scenarios that is different from those in the examples below, as long as a similar range of conditions is reflected.

DATA REQUEST

126. Please summarize for the plant cooling tower the conditions that affect vapor plume formation including exhaust temperature, exhaust mass flow rate, and moisture fraction by weight. These values should account for a range of ambient conditions that shows a reasonable worst-case operating scenario (as in the Water Balance of AFC Appendix 2 Table 2-8-1). For example, provide sufficient operating data to fill the following table.

Parameter	**Cooling Tower Exhausts**					
Number of Cells	7 cells (in 1x7 array)					
Cell Height	13.7 meters (each cell)					
Cell Diameter	9.6 meters (each cell)					
Ambient Temperature	**36°F**		**63°F**		**97°F**	
Ambient Relative Humidity	**85% RH**		**54% RH**		**23.7% RH**	
Duct Burner Status	On	Off	On	Off	On	Off
Heat Rejection (MMBtu/hr)						
Liquid/Gas Mass Flow Ratio						
Exhaust Temperature (°F)						
Exhaust Flow Rate (lb/hr)						
Molecular Weight (estd)	28.8 g/g-mol					
Moisture Content (% by wt) (if cells are plume-abated)						

127. Please summarize for the chillers' auxiliary cooling towers the conditions that affect vapor plume formation including exhaust temperature, exhaust mass flow rate, and moisture fraction by weight. For example, provide sufficient operating data to fill the following table.

Parameter	**Chillers' Auxiliary Cooling Tower Exhausts**					
Number of Cells	4 cells per unit (with 3 units at plant)					
Cell Height	16.1 meters (each cell)					
Cell Diameter	3.6 meters (each cell)					
Ambient Temperature	**36°F**		**63°F**		**97°F**	
Ambient Relative Humidity	**85% RH**		**54% RH**		**23.7% RH**	
Duct Burner Status	On	Off	On	Off	On	Off
Heat Rejection (MMBtu/hr)						
Liquid/Gas Mass Flow Ratio						
Exhaust Temperature (°F)						
Exhaust Flow Rate (lb/hr)						
Molecular Weight (estd)	28.8 g/g-mol					
Moisture Content (% by wt) (if cells are plume-abated)						

128. Please indicate if there would be any relationship between the use of the chillers' auxiliary cooling towers and ambient weather conditions (i.e., note temperature/relative humidity conditions when the chillers' cooling towers will not be operated).

BACKGROUND

Section 6.13.3.6 of the AFC (p. 6.13-18) claims that under most circumstances, no vapor plumes would occur from the combustion turbine/HRSG stacks. To verify this claim staff will conduct an independent visible plume modeling analysis to determine the potential for water vapor plumes to form at the HRSG stacks. Staff requires additional project data to complete this analysis. As with the cooling towers, exhaust conditions will be estimated as a function of weather conditions based on the applicant's response.

DATA REQUEST

129. Please summarize, for the HRSG stacks, the conditions that affect vapor plume formation including stack temperature, exhaust mass flow rate, and moisture fraction by weight. For example, provide sufficient operating data to fill the following table.

Parameter	**HRSG Exhausts**					
Number of Stacks	2 CTG/HRSGs					
Stack Height	44.2 meters (each stack)					
Stack Diameter	5.5 meters (each stack)					
Ambient Temperature	**36°F**		**63°F**		**97°F**	
Ambient Relative Humidity	**85% RH**		**54% RH**		**23.7% RH**	
Duct Burner Status	On	Off	On	Off	On	Off
Exhaust Temperature (°F)						
Exhaust flow rate (lb/hr)						
Molecular Weight (estd)						
Moisture Content (% by wt)						

130. Please confirm whether foggers would be used for combustion turbine inlet air. If so, identify the ambient conditions (i.e., temperature/relative humidity) that would trigger use of the foggers and incorporate those scenarios with the table above.

131. Please provide operational and performance data for any plume abatement strategies proposed by the applicant for either the cooling towers or HRSG stacks.

Technical Area: Waste Management
Author: Alvin Greenberg, Ph.D.
Technical Senior: Mike Ringer

BACKGROUND

The State of California requires a minimum of 50% of all solid waste generated to be recycled. The AFC does not provide adequate information on the amounts of recycling the applicant intends to do on either construction or operation waste. This information is necessary in order to determine the impacts on the environment and the waste disposal facilities.

DATA REQUEST

132. Please provide a draft Waste Management Plan indicating how the applicant plans to comply with waste diversion requirements of state and local ordinance. Please also indicate the percentage of hazardous and non-hazardous wastes that would be diverted from landfill disposal.